



THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

David M. Skinlo

Serial No.: 10/665,687

Filed: September 17, 2003

For: ELECTRIC STORAGE BATTERY
CONSTRUCTION AND METHOD OF
MANUFACTURE

Group No.: 1729

Examiner: Hodge, Robert W.

Docket No. Q137US6

MS Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPELLANT'S BRIEF

I. REAL PARTY IN INTEREST

The real party in interest is Quallion LLC the assignee of the above referenced application.

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II. RELATED APPEALS AND INTERFERENCES

This application claims priority to U.S. Patent Application serial number 10/167,688.

The following applications each directly or indirectly claims priority to U.S. Patent Application serial number 10/167,688 and are currently in the appeals process:

U.S. Patent Application serial number 10/810,075,

U.S. Patent Application serial number 10/665,440, and

U.S. Patent Application serial number 10/665,509.

III. STATUS OF CLAIMS

Claims 1-42 and 46-66 are canceled. Claims 43-45, and 67-90 were previously presented.

1. Claims 43-45, 67, 83, and 85-88 stand rejected under 35 USC §103(a) as being unpatentable over U.S. Patent No. 6,399,242 (Kitoh) in view of U.S. Patent No. 3,159,508 (Chreitzberg).

2. Claims 43-45, 67, 83, and 85-89 stand rejected under 35 USC §103(a) as being unpatentable over U.S. Patent No. 6,399,242 (Kitoh) in view of U.S. Patent No. 5,912,089 (Kitano).

3. Claim 84 stands rejected under 35 USC §103(a) as being unpatentable over U.S. Patent No. 6,399,242 (Kitoh) in view of U.S. Patent No. 5,912,089 (Kitano), and further in view of U.S. Patent No. 5,755,759 (Cogan).

4. Claims 68-71, 73-75, 77-82, and 90 stand rejected under 35 USC §103(a) as being unpatentable over U.S. Patent No. 6,399,242 (Kitoh) in view of U.S. Patent No. 3,159,508 (Chreitzberg), and further in view of U.S. Patent No. 4,053,687 (Coibion).

5. Claims 68-71, 73-75, and 77-82 stand rejected under 35 USC §103(a) as being unpatentable over U.S. Patent No. 6,399,242 (Kitoh) in view of U.S. Patent No. 3,159,508 (Chreitzberg), and further in view of U.S. Patent No. 4,053,687 (Coibion).

6. Claim 89 is rejected under 35 USC 112, first paragraph for failing to comply with the written description requirement.

7. The Final Office Action provides that Claims 72 and 76 would be allowed if re-written in Independent Form. Since the Amendment accompanying this Appeals Brief re-writes these claims in independent form. These claims are allowed.

The rejection of claims 43-45, 67-71, 73-75, 77-83, and 85-89 is appealed.

IV. STATUS OF AMENDMENTS

An amendment is submitted with this Appeal Brief. Accordingly, the claims are as written in the amendment submitted herewith.

V. SUMMARY OF CLAIMED SUBJECT MATTER

In accordance with 37 CFR § 41.37c(1)(v), Appellants provide a brief summary of each independent claim involved in the appeal, where each summary refers to the specification by page and line number and to the drawings by reference number. Appellants note that the citations in this "Summary of claimed subject matter" are provided to identify some portions of the specification related to the particular claims. In the interest of brevity, each claim summary does not necessarily include all references to all relevant portions of the specification and drawings. Accordingly, omission of any reference to the specification or to the drawings should not be construed in any way as an intent to relinquish claim scope, or as an implication or statement regarding the conformance with 35 U.S.C. §112. Appellants respectfully submit that the claims should not be construed as being limited to the embodiments cited in the claim summary, and further submit that other embodiments, as well as the Doctrine of Equivalents, may apply in determining claim scope.

Summary of Independent Claim 43

Independent Claim 43 is the only independent claim pending in the application. Independent claim 43 is directed to an electric storage battery. The battery includes a case sealed by a first end cap (P4, L13-16 and shown in Figure 20) and a second end cap (P12, L27-28 and shown in Figure 24). The battery also includes an electrically conductive terminal pin (labeled 12 in Figure 2) extending through the first end cap (Figure 2 and P3, L18) and electrically insulated from the case (P4, L12). The battery further includes an electrode assembly disposed within the case (Figures 19 and 20 and P10, L25-26). The electrode assembly includes an electrode in electrical communication with the pin and an electrode electrically insulated from the pin (Figure 11 and P9, L15-24). A flexible conductive tab is electrically coupled to the electrode that is electrically insulated from the pin (labeled 94 in Figure 17 and Figure 19). The tab extends from a first location adjacent to the case to a second location (Figure 24). The second location is further from the first location than a centerpoint of the second end cap is from the first location (Figure 24). The tab is immobilized relative to the second end cap at the second location but not being immobilized relative to the second end cap over the entire distance from

the first location to the second location (Figure 21-24).

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

1. Rejection of Claims 43-45, 67, 83, and 85-88 under 35 USC §103(a) as being unpatentable over U.S. Patent No. 6,399,242 (Kitoh) in view of U.S. Patent No. 3,159,508 (Chreitzberg).

2. Rejection of Claims 43-45, 67, 83, and 85-89 under 35 USC §103(a) as being unpatentable over U.S. Patent No. 6,399,242 (Kitoh) in view of U.S. Patent No. 5,912,089 (Kitano).

3. Rejection of Claim 84 under 35 USC §103(a) as being unpatentable over U.S. Patent No. 6,399,242 (Kitoh) in view of U.S. Patent No. 5,912,089 (Kitano), and further in view of U.S. Patent No. 5,755,759 (Cogan).

4. Rejection of Claims 68-71, 73-75, 77-82, and 90 under 35 USC §103(a) as being unpatentable over U.S. Patent No. 6,399,242 (Kitoh) in view of U.S. Patent No. 3,159,508 (Chreitzberg), and further in view of U.S. Patent No. 4,053,687 (Coibion).

5. Rejection of Claims 68-71, 73-75, and 77-82 under 35 USC §103(a) as being unpatentable over U.S. Patent No. 6,399,242 (Kitoh) in view of U.S. Patent No. 3,159,508 (Chreitzberg), and further in view of U.S. Patent No. 4,053,687 (Coibion).

6. Rejection of Claim 89 under 35 USC 112, first paragraph for failing to comply with the written description requirement.

VII. ARGUMENT

1. Claims 43-45, 67, 83, and 85-88 stand rejected under 35 USC §103(a) as being unpatentable over U.S. Patent No. 6,399,242 (Kitoh) in view of U.S. Patent No. 3,159,508 (Chreitzberg).

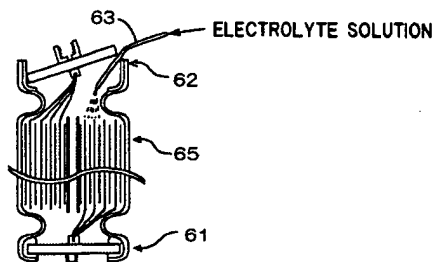
CLAIM 43

The Issue

The inventors were confronted with the issue of how to fill a battery with electrolyte after the electrodes have been placed into the battery case and the electrical connections have been made. Prior battery cases often include a “fill hole” that can be used to inject a liquid electrolyte into the case. However, a fill hole requires as a cover and additional assembly steps in order to seal the fill hole. Accordingly, the use of a fill hole increases costs and reduces reliability (Applicant’s specification P11, L28).

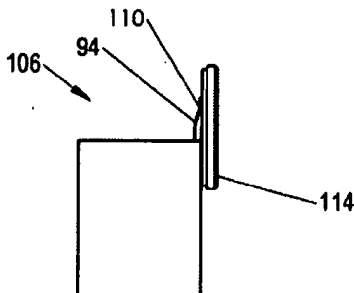
Another method of filling the battery is illustrated in the following diagram:

Fig. 17



(extracted from U.S. Patent number 6,387,561).

However, easy access to components within the case during the filling process can improve the quality of the result. For instance, easy access to these components can reduce air bubbles as discussed in Applicant’s specification (P12, L10-16). To overcome these problems, the Applicant arranges the battery parts as shown in the following portion of Applicant’s Figure 22:



This image represents a stage during the process of assembling the battery. The element labeled 94 represents the tab that is recited in the claims and

the element labeled 114 represents the second endcap recited in the claims. Importantly, the element labeled 110 indicates the location where the tab 94 is connected to the second endcap 110. The arrangement shown in Figure 22 provides easy access to the components within the battery during the electrolyte filling process.

As is evident from the portion of Figure 22 shown above, the second end cap tends to stay in this position because the location where the tab is connected to the second endcap is past the midpoint of the second endcap. As a result, this arrangement of the tab relative to the endcap facilitates the filling process.

Upon assembly of the battery, the arrangement of Figure 22 changes the arrangement of the components within the battery. For instance, the following image (Figure 24 of Applicant specification) shows the relationship between the components in the battery after the battery is

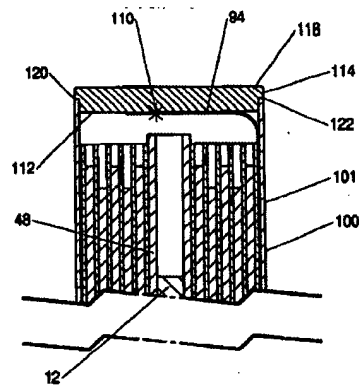


FIG. 24

sealed.

As is evident from this image, the tab 94 is immobilized relative to the cap 114 at a location 110 that is past the centerpoint of the cap but is not immobilized over the distance between the case 100 and the location 110. This arrangement of the tab is what is recited in claim 43.

The pending rejection relies on the following images from the cited art:

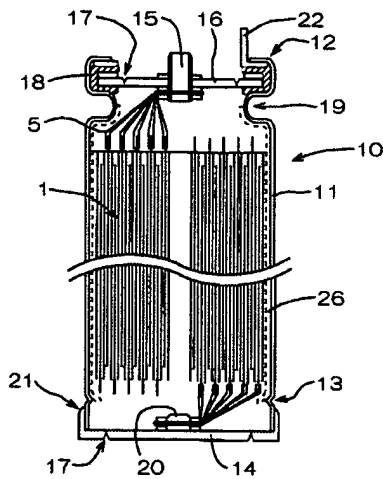


Figure 2 of Kitoh

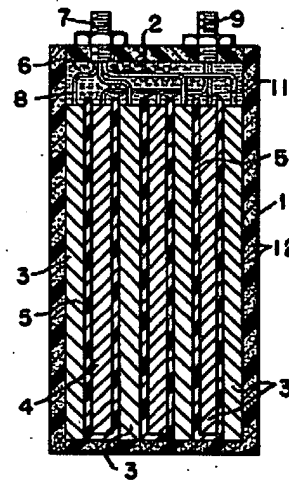


Figure 1 from Chreitzberg.

Does an analysis of these images and the associated text point an inventor toward what the Applicant has done and claimed? In particular, do these teaching point someone toward a battery having a case sealed by two caps where a terminal extends through one end cap and the other endcap is in electrical communication with a tab BUT that tab is not connected to the cap over a distance extending from the case past the centerpoint of that cap?

While the Applicant does not believe there is anything about the prior art teachings that would lead someone to the Applicant's claims, the Applicant addresses a variety of different statements made in support of this rejection below.

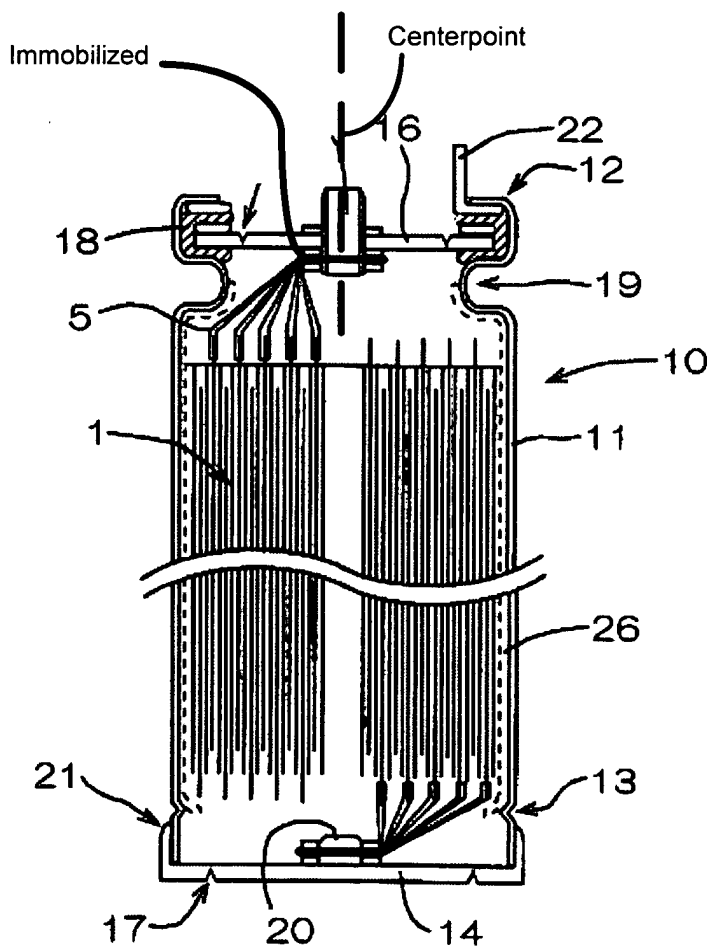
1. Correction of teachings

Before proceeding to individual issues, the Applicant notes that the rejection appears to be based on an improper characterization of the cited art. The Final Office Action states the following at page 3:

Kitoh clearly teaches a tab that extends past a center point of an end cap and is immobilized at a location past the center point. **Kitoh further teaches that the tab is substantially not immobilized from the electrode assembly to said location.**

The bolded portion of this statement is not accurate. To see this, note that the first sentence of this quote characterizes "said location" as being past the centerpoint. As a result, the second

sentence indicates that the tab is not connected to the cap all the way from the electrode assembly to a location that is past the centerpoint. However, a look at Figures 2-4 of Kitoh shows that Kitoh's tabs are immobilized well before center point of Kitoh's endcap. For instance, in the following image, the Applicant has added labels to Kitoh's Figure 2. In particular, the Applicant has added the label "centerpoint" and "immobilized." The label immobilized indicates the location where Kitoh's tabs first become immobilized relative to the endcap. Note that the location where this immobilization occurs is well before the centerpoint.



Kitoh's text does not include any teaching that contradict the teachings of Kitoh's Figure 2. Accordingly, Kitoh DOES NOT TEACH a tab that is disconnected from the cap all the way from the electrode assembly to a location that is past the centerpoint.

2. The Applicant has not merely rearranged parts

The pending rejection argues that the Applicant has merely rearranged parts. In making this argument, the rejection cites the case of *In re. Japiske*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950). This case is cited in MPEP 2144.04(VI)(C). The heading of MPEP 2144.04(VI)(C) is “*Rearrangement of Parts.*” Accordingly, this portion of the MPEP is directed to the law for rejections based on an argument that an Applicant has merely re-arranged parts of a prior art device.

The entire text of MPEP 2144.04(VI)(C) is presented in the indented section below; however, the Applicant has bolded and underlined particular sections of the text that are discussed after the quotation:

C. Rearrangement of Parts

In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950) (Claims to a hydraulic power press which read on the prior art except with regard to the position of the starting switch were held unpatentable because shifting the position of the starting switch would not have modified the operation of the device.); *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975) (the particular placement of a contact in a conductivity measuring device **was held to be an obvious matter of design choice**). However, "The mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims on appeal is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for the worker in the art, without the benefit of appellant's specification, to make the necessary changes in the reference device." *Ex parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984). (Underlining and bolded sections added by Applicant)

First Reason MPEP(VI)(C) is not properly applied

As is evident from the bolded portion of the above text, this section of MPEP(VI)(C) applies when the “rearrangement or parts” is a matter of design choice. The location of the tab recited in the claim 43 is not a mere matter of design choice. For instance, as discussed above, the claimed tab location eliminates the need for a fill hole. In fact, the specification states that the claimed tab location can “**obviate... the need for a separate electrolyte fill port, thereby**

reducing the number of components and number of seals to be made, thus reducing cost and improving reliability.” The specification describes this as follows:

In accordance with a preferred embodiment, the tab 94 is sufficiently long to locate the weld 110 beyond the center point of the circular endcap 114. More particularly, note in FIGS. 21-24 that by locating the weld 110 displaced from the center of the cap 114, the tab 94 can conveniently support the endcap 114 in a vertical orientation as depicted in FIG. 22 misaligned with respect to the open end 106. This end cap position approximately perpendicular to the end 122 of the case 100 is a first bias position wherein the end cap advantageously tends to remain in that orientation with the case end open prior to filling. To further describe the relationship between the weld location and the various components, FIG. 23 shows a front view with various dimensions. L represents the length from the weld 110 to the top of the case 100 as measured parallel to the edge of the case. R is the radius of the end cap 114. For the preferred geometry, $L \leq 2R$. Weld 110 is preferably made above the center point 111 of the end cap 114. Preferably, the end cap 114 overlaps the case 100 by approximately $R/2$. By configuring the tab 94 and weld 110 as indicated, the endcap 114 can be supported so that it does not obstruct the open end 106, thereby facilitating electrolyte filling of the case interior cavity via open end 106. A filling needle or nozzle can be placed through open end 106 to fill the case. **This obviates the need for a separate electrolyte fill port, thereby reducing the number of components and number of seals to be made, thus reducing cost and improving reliability.** Furthermore, for small medical batteries, the end caps would be very small to have fill ports therein. In a preferred embodiment in which the case wall is very thin, for example, 0.002 inches, providing a fill port in the side wall of the case would be impractical. Even in the case of larger devices where space is less critical and the wall is more substantial, providing a fill port in the side of the case would mean the electrolyte would have a very long path length to wet the jellyroll. Note that while the case could be filled with electrolyte prior to welding tab 94 to endcap 114, it would be difficult and messy to do so. Therefore, it is advantageous to configure the tab 94 and weld 110 as described to allow the weld to be made prior to filling.

Since the claimed tab location can “**obviate... the need for a separate electrolyte fill port, thereby reducing the number of components and number of seals to be made, thus reducing cost and improving reliability,**” there is no reasonable argument that this is a mere design choice. The fact that the claimed tab location is not a mere matter of design choice shows that MPEP(VI)(C) is not properly applied to this rejection.

Second Reason MPEP(VI)(C) is not properly applied

Additionally, the portion of MPEP(VI)(C) that that Applicant underlined above states that “(t)he PRIOR ART must provide a motivation or reason for the worker in the art, without the benefit of appellant's specification, to make the necessary changes in the reference device.” As a result, for this law to apply, the motivation to make the proposed changes must be found in the **prior art**. In this case the proposed change is to “attach the ...tabs of Kitoh only at a second location past the center point” (stated in last 3 lines on page 6 of 7/13/10 Final Office Action). Accordingly, in order for this law to apply, the motivation for making this change must be found in the prior art.

The motivation set forth in the Office Action is that the proposed modification would “reduce internal resistance and facilitate current extraction.” Nothing in any of the cited art indicates that making the suggested change would reduce internal resistance or improve “current extraction.” As a result, the stated motivation cannot be found in the cited art. The fact that the stated motivation cannot be found in the cited art is even further evidence that MPEP(VI)(C) is not properly applied to this rejection.

3. There Is No Motivation to Make the Proposed Modification

The Office Action proposes attaching Kitoh’s tabs as taught by Chreitzberg’s. The Office Action states that the motivation for the proposed modification is to “reduce internal resistance and facilitate current extraction.”

The Office Action analogizes Chreitzberg’s conductors 8, 11 to the claimed tab. However, the ONLY teachings that Chreitzberg provides about these conductors 8, 11 are shown in Figure 1 and in the following text:

Each of the negative electrodes 3 is connected to the negative terminal of the battery 7 by means of a conductor 8. Similarly, each of the positive electrodes 4 is connected to the positive terminal of the battery 9 by means of a conductor 11.

There is nothing about these teachings that even suggests that the arrangement of the Chreitzberg's conductors 8, 11 would "reduce internal resistance and facilitate current extraction" in Itoh's battery. As a result, the motivation for the proposed modification cannot be found in the cited art.

The KSR decision finds that the motivation for a proposed modification can also come from common sense. However, common sense indicates that the stated motivation is not accurate. For instance, since Kito's tabs are shown positioned in one half of the battery, modifying Itoh as proposed would lengthen a portion of Kito's tabs. Increasing the length of a tab increases the resistance provided by that tab and accordingly increases the internal resistance of the battery. Further, increasing the internal resistance of the battery cannot be considered to facilitate current extraction. As a result, common sense does not lead one to conclude that re-locating Itoh's tabs as suggested would "reduce internal resistance and facilitate current extraction."

Due to the lack of reasoning for the stated motivation in either the cited art or in common sense, the only motivation for the proposed modification appears to be found in the Applicant's specification. As a result, it logically follows that the basis for the proposed modification has been improperly gleaned from Applicant's own specification and that the combination of the cited is an exercise of impermissible hindsight. Accordingly, it is respectfully submitted that the combination is improper and respectfully requested that the rejection be withdrawn.

4. The Cited Art Does Not Teach or Suggest Every Limitation of the Claims

Kito teaches a battery having a single terminal 15 centered in each one of its endcaps. **The only way Kito can be modified so it includes a tab that is arranged as claimed is for one of Kito's terminals to be moved from its current location to a location that is off center in the cap.** Chreitzberg teaches multiple terminals extending through a single "top seal 2." Since multiple terminals extend through a single "top seal 2," at least one of the terminals must be off center relative in the "top seal." However, Chreitzberg use of multiple terminals extending through a "top seal 2" does not suggest that it would be beneficial to move one of

Kitoh's terminal to an off center location, especially when Kitoh's terminals are centered relative to the electrodes. Why would someone move one of these terminals to an off center location? There is nothing suggesting that this be done in any of the cited art. Since the cited art fails to teach or suggest every limitation of the claims, claim 43 is patentable over the cited art for this reason alone.

CLAIMS 44-45, 67, 83, and 85-88

Each of these claims depends directly or indirectly from Independent Claim 43. Since Independent Claim 43 is patentable over the cited art, these claims are also patentable.

2. Claims 43-45, 67, 83, and 85-89 stand rejected under 35 USC §103(a) as being unpatentable over U.S. Patent No. 6,399,242 (Kitoh) in view of U.S. Patent No. 5,912,089 (Kitano).

CLAIM 43

Claim 43 stands rejected under 35 USC §103(a) as being unpatentable over U.S. Patent No. 6,399,242 (Kitoh) in view of U.S. Patent No. 5,912,089 (Kitano).

As noted above claim 43 includes a tab that is immobilized relative to an end cap at a location that is past the centerpoint from the case but that is not immobilized between the case and the location. The pending rejection relies on Kitano for this teaching. In particular, the Office Action cites Figure 2 and Figure 3.

The problem with Kitano's Figure 2 and Figure 3 is that they are images that are before the assembly of Kitano's battery (C3, L30-31). In contrast, claim 43 is directed to a sealed battery (claim 43 recites "a case sealed by a first end cap and a second end cap"). As a result, we must look to see what Kitano teaches about the sealed battery. In the sealed battery, the tab is welded to the end cap at the location labeled "B" in Figure 4. In fact, Kitano states that "the positive current collecting plate 6 is welded to the bottom surface of cover plate 8 at the second weld portion B as shown in FIGS. 1 and 4." The location labeled B is between the centerpoint of Kitano's cap and Kitano's case. As a result, Kitano's sealed battery does not teach a tab that is not immobilized between the case and a location that is past the centerpoint. Accordingly, the cited art fails to teach or suggest every limitation of the claims.

CLAIMS 44-45, 67, 83, and 85-89

Each of these claims depends directly or indirectly from Independent Claim 43. Since Independent Claim 43 is patentable over the cited art, these claims are also patentable.

3. Rejection of Claim 84 under 35 USC §103(a) as being unpatentable over U.S. Patent No. 6,399,242 (Kitoh) in view of U.S. Patent No. 5,912,089 (Kitano), and further in view of U.S. Patent No. 5,755,759 (Cogan).

Since claim 84 depends directly from claim 43 and since claim 43 is patentable over the cited art, claim 84 is also patentable over the cited art.

4. Rejection of Claims 68-71, 73-75, 77-82, and 90 under 35 USC §103(a) as being unpatentable over U.S. Patent No. 6,399,242 (Kitoh) in view of U.S. Patent No. 3,159,508 (Chreitzberg), and further in view of U.S. Patent No. 4,053,687 (Coibion).

Since claims 68-71, 73-75, 77-82, and 90 each depends directly or indirectly from claim 43 and since claim 43 is patentable over the cited art, claims 68-71, 73-75, 77-82, and 90 are also patentable over the cited art.

5. Rejection of Claims 68-71, 73-75, and 77-82 under 35 USC §103(a) as being unpatentable over U.S. Patent No. 6,399,242 (Kitoh) in view of U.S. Patent No. 3,159,508 (Chreitzberg), and further in view of U.S. Patent No. 4,053,687 (Coibion).

Since claims 68-71, 73-75, and 77-82 each depends directly or indirectly from claim 43 and since claim 43 is patentable over the cited art, claims 68-71, 73-75, and 77-82 are also patentable over the cited art.

6. Rejection of Claim 89 under 35 USC 112, first paragraph for failing to comply with the written description requirement.

Claim 89 is rejected for failing to comply with the written description requirement on the grounds that “no support can be found for the negative limitation of “wherein the tab is the only tab providing electrical communication between the second end cap and the electrode...” Figure 21 illustrates a battery where “the tab is the only tab providing electrical communication between the second end cap and the electrode that is electrically insulated from the pin” as recited in claim 89.

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Respectfully submitted

A handwritten signature in black ink, appearing to read 'Travis Dodd', with a stylized flourish at the end.

TRAVIS DODD
Reg. No. 42,491
Agent for Applicant(s)

VIII. CLAIMS APPENDIX

1.-42. (canceled)

43. (previously presented) An electric storage battery, comprising:

a case sealed by a first end cap and a second end cap;

an electrically conductive terminal pin extending through the first end cap and electrically insulated from the case;

an electrode assembly disposed within the case, the electrode assembly includes an electrode in electrical communication with the pin and an electrode electrically insulated from the pin;

a flexible conductive tab electrically coupled to the electrode that is electrically insulated from the pin,

the tab extending from a first location adjacent to the case to a second location,

the second location being further from the first location than a centerpoint of the second end cap is from the first location,

the tab being immobilized relative to the second end cap at the second location but not being immobilized relative to the second end cap over the entire distance from the first location to the second location.

44. (previously presented) The battery of claim 43, wherein the case excludes a fill hole.

45. (previously presented) The battery of claim 43, wherein a weld connects a flat portion of the tab to an inner face of the second end cap.

46.-66. (canceled)

67. (previously presented) The battery of claim 43, wherein the second end cap has a radius and a distance from the first location to the second location is greater than the radius.

68. (previously presented) The battery of claim 43, wherein the electrodes are electrode strips wound around the pin so as to form a spiral role on the pin.

69. (previously presented) The battery of claim 68, wherein the spiral role includes at least one separator separating the electrodes.

70. (previously presented) The battery of claim 68, wherein the electrode assembly includes a mandrel mounted on the pin such that the electrodes are wound around the pin and the mandrel.

71. (previously presented) The battery of claim 70, wherein the mandrel includes a longitudinal slot; and wherein

the electrode in electrical communication with the pin extends through the mandrel slot.

72. (previously presented) An electric storage battery, comprising:

a case sealed by a first end cap and a second end cap;

an electrically conductive terminal pin extending through the first end cap and electrically insulated from the case;

an electrode assembly disposed within the case, the electrode assembly includes an electrode in electrical communication with the pin and an electrode electrically insulated from the pin,

the electrodes are electrode strips wound around the pin so as to form a spiral role on the pin,

the electrode assembly includes a mandrel mounted on the pin such that the electrodes are wound around the pin and the mandrel,

the mandrel has a channel through which electrolyte can be injected;

a flexible conductive tab electrically coupled to the electrode that is electrically insulated from the pin,

the tab extending from a first location adjacent to the case to a second location,

the second location being further from the first location than a centerpoint of the second end cap is from the first location,

the tab being immobilized relative to the second end cap at the second location but not being immobilized relative to the second end cap over the entire distance from the first location to the second location.

73. (previously presented) The battery of claim 70, wherein a portion of the electrode in electrical communication with the pin is positioned between the mandrel and the pin.

74. (previously presented) The battery of claim 70, wherein the electrode in electrical communication with the pin includes active material positioned on a substrate, the substrate being positioned between the mandrel and the pin without the active material being positioned between the mandrel and the pin.

75. (previously presented) The battery of claim 70, wherein a weld attaches the mandrel to the pin.

76. (previously presented) An electric storage battery, comprising:

a case sealed by a first end cap and a second end cap;

an electrically conductive terminal pin extending through the first end cap and electrically insulated from the case;

an electrode assembly disposed within the case, the electrode assembly includes an electrode in electrical communication with the pin and an electrode electrically insulated from the pin,

the electrodes are electrode strips wound around the pin so as to form a spiral role on the pin,

the electrode assembly includes a mandrel mounted on the pin such that the electrodes are wound around the pin and the mandrel,

the mandrel includes titanium or an alloy of titanium;

a flexible conductive tab electrically coupled to the electrode that is electrically insulated from the pin,

the tab extending from a first location adjacent to the case to a second location,

the second location being further from the first location than a centerpoint of the second end cap is from the first location,

the tab being immobilized relative to the second end cap at the second location but not being immobilized relative to the second end cap over the entire distance from the first location to the second location.

77. (previously presented) The battery of claim 70, wherein the mandrel is crimped to the pin.

78. (previously presented) The battery of claim 70, wherein the mandrel includes a tube.

79. (previously presented) The battery of claim 70, wherein the pin is positioned in an interior of the tube.

80. (previously presented) The battery of claim 70, wherein the mandrel has a c-shaped cross-section.

81. (previously presented) The battery of claim 70, wherein the mandrel is fitted around the pin such that the electrodes are wound around the pin and the mandrel.

82. (previously presented) The battery of claim 70, wherein the mandrel is a reinforcing mandrel.

83. (previously presented) The battery of claim 43, wherein at least one weld directly connects the electrode that is in electrical communication with the pin to the pin.

84. (previously presented) The battery of claim 43, wherein the pin includes of an alloy of PtIr.

85. (previously presented) The battery of claim 43, wherein the first end cap includes
an electrical insulator,
the pin extends through the electrical insulator, and
the pin is hermetically sealed to the electrical insulator.

86. (previously presented) The battery of claim 43, wherein the case is electrically conducting.
87. (previously presented) The battery of claim 43, wherein the tab extends past the centerpoint of the second end cap such that a line that extends through the centerpoint in a direction that is perpendicular to the second end cap also extends through the tab.
88. (previously presented) The battery of claim 68, wherein the tab provides electrical communication between the second end cap and the electrode that is electrically insulated from the pin.
89. (previously presented) The battery of claim 88, wherein the tab is the only tab providing electrical communication between the second end cap and the electrode that is electrically insulated from the pin.
90. (previously presented) The battery of claim 68, wherein the tab is connected to the second end cap such that the second end cap can be removed from the case and with the electrode assembly still positioned in the case the second end cap be positioned perpendicular to an end of the case with the tab extending through the end and the case being located between the tab and the second end cap.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.